

EASTERN MICHIGAN UNIVERSITY™

AERIAL LIFT PROGRAM



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EASTERN MICHIGAN UNIVERSITY

AERIAL WORKS PROGRAM

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EASTERN MICHIGAN UNIVERSITY AERIAL WORK PLATFORMS PROGRAM

PURPOSE

This Aerial Work Platforms Program is designed to achieve compliance with the Michigan Department of Labor and Economic Growth Construction Safety Standard Part 32. Aerial Work Platforms. This standard applies to the construction, operation, maintenance and inspection of manual and powered aerial work platforms.

SCOPE AND APPLICATION

This program applies to all Eastern Michigan University employees using aerial work platforms. Outside contractors using aerial work platforms must also comply with this program or have an equivalent program. Outside contractors must provide the contracting department with a copy of their program prior to performing the required work.

POLICY

Prior to using an aerial work platform, the aerial lift procedures which follow, shall be implemented to ensure employees are protected from the hazards associated with aerial work platforms.

DEFINITIONS

Aerial Work Platforms - an entire device that is designed and manufactured to raise personnel to an elevated work position on a platform supported by scissors, masts or booms. Aerial work platforms include: vehicle-mounted elevating work platforms, manually propelled elevating work platforms, boom-supported elevating work platforms and self-propelled elevating work platforms.

Articulating Boom - an aerial device that has two, or more, hinged boom sections.

Authorized Person - a person who is approved and assigned to perform specific types of duties by Eastern Michigan University and who is qualified to perform those duties because of his or her training or experience.

Insulated Aerial Device - an aerial work platform that is designed with dielectric components to meet specific electrical insulating ratings.

Mechanically Positioned- the elevating assembly, whether a mechanical (cable or chain), hydraulic, pneumatic, electric or other powered mechanism, is used to raise or lower the platform.

Platform- the portion of an aerial work platform, such as a bucket, basket, stand, cage, or the equivalent, that is designed to be occupied by personnel.

Qualified person - a person who possesses a recognized degree, certificate, professional standing or skill and who, by knowledge, training, and experience, has demonstrated the ability to deal with problems relating to the subject matter, the work or the project.

Vertical Tower - an aerial device that is designed to operate vertically on a level surface.

RESPONSIBILITIES

Supervisors

1. Shall implement procedures in accordance with the Aerial Work Platforms Program.
2. Shall develop written Standard Operation Procedures for all aerial lifts.
3. Ensure employees are trained and aware of this Program.
4. Shall ensure employees are informed, trained, and provided with the appropriate fall protection systems and equipment to be protected from potential fall hazards associated with job tasks.
5. Shall promptly investigate and report all on-the-job accidents or near misses.
6. Contact the Health and Safety Office to request technical assistance and to evaluate health and safety concerns within their department.

Employees

1. Shall comply with this Program and all departmental Standard Operating Procedures.
2. Shall wear appropriate fall protection equipment when required.
3. Shall inspect all fall protection equipment prior to use.
4. Shall use all inspection check lists found in the following appendices.
5. Shall report any accidents, near misses or job-related injuries or illnesses to their supervisor and seek prompt medical treatment, if necessary.
6. Shall participate in the required training.

Health and Safety Office

1. Shall arrange training of university employees in fall protection and in the safe use of elevating personal platforms.
2. Shall conduct periodic inspections of aerial lift equipment.
3. Shall review and revise this Program as necessary.

CONSTRUCTION

1. Aerial lifts used at Eastern Michigan University shall be in compliance with the requirements of the following applicable American National Standards Institute standard:
 - A. ANSI standard A92.2-1990, "Vehicle-Mounted Elevating and Work Platforms"
 - B. ANSI standard A92.3-1990, "Manually Propelled Elevating Work Platforms"
 - C. ANSI standard A92.5-1992, "Boom-Supported Elevating Work Platforms"
 - D. ANSI standard A92.6-1999, "Self-Propelled Elevating Work Platforms"
2. Aerial work platforms shall not be field-modified for uses other than those intended by the manufacturer, unless the modification has been certified in writing by the manufacturer.
3. Directional controls shall be in compliance with all of the following:
 - A. Be of the type that will automatically return to the off or neutral position when released.
 - B. Be protected against inadvertent operation.
 - C. Be clearly marked as to their intended function.
 - D. An overriding control shall be provided in the platform which must be continuously activated for platform directional controls to be operational and which automatically returns to the off position when released.
4. Aerial work platforms shall be equipped with emergency controls at ground level.
5. Emergency ground level controls shall be clearly marked as to their intended function and be capable of overriding the platform controls.
6. All of the following information shall be clearly marked in a permanent manner on each aerial work platform:
 - A. Special warnings, cautions, or restrictions necessary for operation.
 - B. Rated work load.
 - C. A clear statement of whether or not the aerial work platform is electrically insulated.
7. Rotating shafts, gears and other moving parts that are exposed to contact shall be guarded.
8. Attachment points shall be provided for fall protection devices for personnel who occupy the platform on vehicle-mounted and boom-supported elevating work platforms.

INSPECTION, MAINTENANCE AND TESTING

1. Each aerial work platform shall be inspected, maintained, repaired and kept in proper working condition in accordance with the manufacturer's or owner's operating or maintenance and repair manual(s). The appropriate checklists are located in the appendices of this program.
2. Daily and weekly inspections shall be conducted by the operator(s). Monthly, quarterly, and semi-annual inspections shall be conducted and/or overseen by the supervisor.
3. Any aerial work platform found not to be in a safe operating condition shall be removed from service until repaired. All repairs shall be made by an authorized person in accordance with the manufacturer's or owner's operating or maintenance and repair manual(s).
4. If the aerial work platform is rated and used as an insulated aerial device, the electrical insulating components shall be tested for compliance with the rating of the aerial work platform according to ANSI standard A92.2-1990, Section 6. Testing shall comply with all of the following:
 - A. The test shall be performed not less than annually.
 - B. Written, dated and signed test reports shall be maintained and readily available for inspection.
 - C. The insulated portion of an aerial device shall not be altered in any manner that might reduce its insulating value.
5. All danger, caution, and control markings and operational plates shall be legible and not obscured.

TRAINING

1. Each employee who will operate an aerial work platform shall receive instruction and training regarding the specific equipment before a permit is issued or reissued. The instruction and training shall ensure each operator is in compliance with the minimum following provisions:
 - A. Is instructed by a qualified person in the intended purpose and function of each of the controls.
 - B. Is trained by a qualified person or reads and understands the manufacturer's or owner's operating instructions and safety rules.
 - C. Understands by reading or by having a qualified person explain, all decals, warnings and instructions displayed on the aerial work platform.
 - D. Reads and understands the provisions of this section and the permit section or is trained by a qualified person on their content.

2. The manufacturer's operating instructions and safety rules shall be provided and maintained in a legible manner on each aerial work platform.
3. Employees shall demonstrate competence in operation of the aerial lift prior to being issued a permit.

PERMITS

1. Upon completion of the required training, Eastern Michigan University shall provide each operator of an aerial work platform with an aerial work platform permit.
2. An operator shall carry the permit and provide it to inspection authorities upon request.
3. The permit shall indicate the type aerial work platform the operator has been trained on and is qualified to operate.
4. An Eastern Michigan University permit is only valid when performing work for Eastern Michigan University.
5. The permit shall be issued for a period of not more than 3 years.
6. The permit shall contain all of the following information:
 - A. Firm name.
 - B. Operator's name.
 - C. Name of issuing authority.
 - D. The type aerial work platform the operator is authorized to operate.
 - E. Issue date.
 - F. Expiration date.

PREOPERATIONAL PROCEDURES

Before use on each work shift, the operator of an aerial work platform shall conduct a visual inspection of the aerial lift to check for defects that would affect its safe operation and use. The inspection shall consist of not less than both of the following procedures:

- A. Visual inspection for all of the following:
 1. Cracked welds.
 2. Bent or broken structural members.
 3. Hydraulic or fuel leaks.
 4. Damaged controls and cables.
 5. Loose wires.
 6. Tire condition.
 7. Fuel and hydraulic fluid levels.
 8. Slippery conditions on the platform.

- B. Operate all platform and ground controls to ensure they perform their intended functions.
2. Before the aerial work platform is used and during use, the operator shall use the Daily Aerial Lift Inspection Form and also inspect for all of the following:
 - A. Ditches.
 - B. Drop-offs.
 - C. Holes.
 - D. Bumps and floor obstructions.
 - E. Debris.
 - F. Overhead obstructions.
 - G. Power lines.
 - H. Any similar conditions to those listed above.
 - I. Area around the aerial work platform to assure clearance for the platform and other parts of the unit.
 3. All unsafe items found as a result of the inspection of the aerial work platform or work area shall be corrected before further use of the aerial work platform.
 4. Any overhead wire shall be considered to be an energized line until the owner of the line or his/her authorized representative ensures that it is de-energized.
 5. When electrical clearances cannot be maintained, the equipment shall not be used.

OPERATING PROCEDURES

1. The aerial work platform shall be used only in accordance with the manufacturer's or owner's operating instructions and safety rules. Unauthorized personnel are prohibited from operating an aerial lift.
2. When operating aerial work platforms or other equipment under, over, by or near energized electric power lines the following clearances shall be maintained:

Voltage	Minimum clearance
0 to 50 kV.	10 feet
Over 50 kV.	10 feet + .4 inch per kV.

3. The above clearance requirements do not apply to the following situations:
 - A. Where work is performed from an insulated aerial device which is Insulated for the work and the work is performed in accordance with the provisions of the MIOSHA construction safety standards Part 16 "Power Transmission and Distribution" and Part 30 "Telecommunications".
 - B. Where the electric power transmission or distribution lines have been de-energized and visibly grounded at the point of work or where insulating

barriers that are not a part of an attachment to the aerial work platform have been erected to prevent physical contact with the line.

- C. Where work is being performed by 2 licensed journeyman electricians on equipment up to .5 kV.
4. Two licensed journeymen will be required for work within the minimum clearance on equipment over .5 kV.
 5. Proximity warning devices may be used, but shall not be used instead of meeting the requirements contained above.
 6. The manufacturer's rated load capacity shall not be exceeded. The operator shall ensure the load and its distribution on the platform are in accordance with the manufacturer's specifications. The aerial work platform rated load capacity shall not be exceeded when loads are transferred to the platform at elevated heights.
 7. Only personnel, their tools and necessary materials shall be on or in the platform. Secure tools and other loose items to prevent injury to persons working on or below the platform.
 8. The guardrail system of the platform shall not be used to support any of the following:
 - A. Materials
 - B. Other work platforms.
 - C. Employees.
 9. Personnel shall maintain firm footing on the platform while working on the platform. The use of railings, planks, ladders or any other devices on the platform for achieving additional height is prohibited.
 10. Fuel gas cylinders shall not be carried on platforms that would allow the accumulation of gases.
 11. Appropriate fall protection (harness with a lanyard) shall be provided to and used by any occupant of a vehicle-mounted and/or boom-supported elevating work platform.
 12. A body belt may be used with a restraint device with the lanyard and the anchor arranged so that the employee is not exposed to any fall distance. A restraint device is required where the aerial lift cannot withstand the vertical and lateral loads imposed by an arrested fall.
 12. Belting off to an adjacent pole, structure or equipment while working from an aerial work platform is prohibited.

13. Employees shall not exit an elevated aerial work platform, except where elevated work areas are inaccessible or hazardous to reach. Employees may exit the platform with the knowledge and consent of their supervisor. When exiting to unguarded work areas, fall protection shall be provided and used.
14. Only aerial work platforms that are equipped with a manufacturer's installed platform controls for horizontal movement shall be moved while in the elevated position.
15. Before and during driving while elevated, an operator of a platform shall do both of the following:
 - A. Look in the direction of and keep a clear view of the path of travel and make sure that the path is firm and level.
 - B. Maintain a safe distance from all of the following:
 1. Obstacles.
 2. Debris.
 3. Drop-offs.
 4. Holes.
 5. Depressions.
 6. Ramps.
 7. Overhead obstructions.
 8. Overhead electrical lines.
 9. Other hazards to safe elevated travel.
 10. Pedestrian traffic.
16. Outriggers or stabilizers, when provided, are to be used in accordance with the manufacturer's instructions. Outriggers and stabilizers shall be positioned on pads or a solid surface.
17. Aerial work platforms shall be elevated only when on a firm and level surface or within the slope limits allowed by the manufacturer's instructions.
18. A vehicle mounted aerial work platform shall have its brakes set before elevating the platform.
19. A vehicle mounted aerial work platform shall have wheel chocks installed before using the unit on an incline.
20. Climbers shall not be worn while performing work from an aerial work platform.
21. Platform gates shall be closed while the platform is in an elevated position.
22. Stunt driving and horseplay are prohibited.
23. Altering, modifying or disabling safety devices or interlocks is prohibited.

24. Care shall be taken by the operator to prevent ropes, cords and hoses from becoming entangled in the aerial work platform.
25. A platform operator shall ensure that the area surrounding the aerial work platform is clear of personnel and equipment before lowering the platform.
26. Before and during travel, except as provided for horizontal movement in number 14, an operator shall do all of the following:
 - A. Inspect to see that booms, platforms, aerial ladders, or towers are properly cradled or secured.
 - B. Ensure that outriggers are in a stored position.
 - C. Limit travel speed according to the following factors:
 1. Condition of the surface.
 2. Congestion.
 3. Slope.
 4. Location of personnel.
 5. Other hazards.
25. The aerial work platform shall not be positioned against another object to steady the platform.
26. The aerial work platform shall not be operated from a position on a truck, trailer, scaffold or similar equipment.
27. The boom and platform of the aerial work platform shall not be used to move or jack the wheels off the ground unless the machine is designed for that purpose by the manufacturer.
28. If the platform or elevating assembly becomes caught, snagged or otherwise prevented from normal motion by adjacent structures or other obstacles such that control reversal does not free the platform, all personnel shall be removed from the platform before attempts are made to free the platform.
29. Climbing down the beams assembly (armset) if the aerial lift fails, while the platform is raised, is prohibited.
30. Two persons shall be present whenever the aerial lift is used.
31. Persons using alcohol or drugs or who experience dizziness, seizures or who have a fear of heights shall not operate an aerial lift.

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Daily Aerial Lift Inspection Checklist

All checks must be completed before operation of the aerial lift. This checklist must be used at the beginning of each shift or after six to eight hours of use.

MANUALLY PROPELLED LIFT _____ **SELF PROPELLED LIFT** _____
LIFT MODEL NUMBER _____ **SERIAL NUMBER** _____

INITIAL	DESCRIPTION
---------	-------------

- | | |
|-------|--|
| _____ | Perform a visual inspection of all aerial lift components, i.e. missing parts, torn or loose hoses, hydraulic fluid leaks, etc. Replace as necessary. |
| _____ | Check the hydraulic fluid level with the platform fully lowered. |
| _____ | Check the tires for damage. Check wheel lug nuts for tightness. |
| _____ | Check the hoses and the cables for worn areas or chafing. Replace if necessary. |
| _____ | Check for cracked welds. |
| _____ | Check the platform rails and safety gate for damage. |
| _____ | Check for bent or broken structural members. |
| _____ | Check the pivot pins for security. |
| _____ | Check that all warning and instructional labels are legible and secure. |
| _____ | Inspect the platform control. Ensure the load capacity is clearly marked. |
| _____ | Check for slippery conditions on the platform. |
| _____ | Check the hydraulic system pressure (See manufacturer's specifications). If the pressure is low, determine the reason and repair in accordance with accepted procedures as outlined in the service manual. |
| _____ | Check the base controls for proper operation. Check switches and push-buttons for proper operation. |
| _____ | Check the platform controls for proper operation. Check all switches and push buttons, as well as ensuring that the drive controller returns to neutral. |

Date _____ **Inspected By** _____

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Weekly Aerial Lift Inspection Checklist

All checks must be completed within a week operation of the aerial lift. This checklist must be used at the beginning or end of each week of use.

MANUALLY PROPELLED LIFT _____ **SELF PROPELLED LIFT** _____
LIFT MODEL NUMBER _____ **SERIAL NUMBER** _____

INITIAL

DESCRIPTION

- _____ Perform all checks on daily inspection list.
- _____ Check wheel lugs for proper torque (see manufacturer's specifications).
- _____ Inspect all arms and pivot points for signs of wear and/or damage.
- _____ Lubricate all grease fittings. (follow manufacturers recommendations)
- _____ Check all wire connections.
- _____ Check all battery electrolyte levels and connections.

Date _____ **Inspected By** _____

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Monthly Aerial Lift Inspection Checklist

All checks must be completed before operation of the aerial lift. This checklist must be used at monthly intervals or every 100 hours, whichever occurs first.

MANUALLY PROPELLED LIFT _____ **SELF PROPELLED LIFT** _____
LIFT MODEL NUMBER _____ **SERIAL NUMBER** _____

INITIAL

DESCRIPTION

Perform all checks listed on the Daily and Weekly Inspection Checklists.

Inspect the condition of hydraulic fluid in the reservoir. Oil should have a clear amber color.

Inspect the entire machine for signs of damage, broken welds, loose bolts, improper or makeshift repairs.

Check the pin joints and retaining rings for security.

Check if tires are leaning in or out.

Check that all adjustable flow valves are locked, check settings if any are not locked.

Check that the platform does not drift down with a full load.

Check the electrical motor brushes.

Date _____ **Inspected By** _____

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Quarterly Aerial Lift Inspection Checklist

All checks must be completed before operation of the aerial lift. This checklist must be used at quarterly intervals or every 300 hours, whichever occurs first.

MANUALLY PROPELLED LIFT _____ SELF PROPELLED LIFT _____
LIFT MODEL NUMBER _____ SERIAL NUMBER _____

INITIAL DESCRIPTION

_____ Perform all checks listed on the daily, weekly and monthly Inspection Checklists.

Additional Maintenance Requirements For Severe Usage Applications

INITIAL DESCRIPTION

_____ Change Hydraulic filter element

Date _____ **Inspected By** _____

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Semiannual Aerial Lift Inspection Checklist

All checks must be completed before operation of the aerial lift. This checklist must be used at six month intervals or every 500 hours, whichever occurs first.

MANUALLY PROPELLED LIFT _____ **SELF PROPELLED LIFT** _____
LIFT MODEL NUMBER _____ **SERIAL NUMBER** _____

INITIAL

DESCRIPTION

_____ Perform all checks listed on Daily, Weekly, Monthly and Quarterly Inspection checklists.
 _____ Have a hydraulic fluid sample analyzed at a test laboratory. Comply with the test results and recommendations.

IMPORTANT: If Hydraulic Fluid Has Been Regularly Maintained It Should Only Require Changing Once Every Year Depending On Maintenance, Temperature, Application, Duty Cycle, And Atmospheric Conditions.

_____ Check the operation speeds to ensure they are within specified limits (see manufacturers specifications).
 _____ Check the emergency lowering system.
 _____ Clean and lubricate all push-button switches with dry lubricant and ensure that the switches operate freely in all positions.
 _____ Inspect the platform structure for damage and condition of welds.
 _____ Check the tightness of the platform frame and the linkage pins.
 _____ Check the overall platform stability.
 _____ Check the electrical mounting and hardware connections for security.
 _____ Replace the filter element.
 _____ Check the king-pins for excessive play.

Date _____ **Inspected By** _____